

What is claimed is:

1. An intake system comprising;

a tubular portion formed of a plurality of divided primary molded members so as to form a packing  
5 portion into which a secondary molding resin can be packed at a joint between the plurality of primary molded members,

a functional part attached to the tubular portion and having an arm portion that is superimposed on  
10 the tubular portion, and

a lock-shaped portion formed integrally from the secondary molding resin and having a trunk portion which is welded to the primary molded members forming the packing portion, a first neck portion which  
15 is formed in such a manner as to be smaller in diameter than an outside diameter of the trunk portion and which extends radially outwardly of the trunk portion so as to penetrate the primary molded members and the arm portion, and a first head portion which is connected an end of the  
20 first neck portion which is opposite to an end thereof which faces the trunk portion and which is formed in such a manner as to be larger in diameter than an outside diameter of the first neck portion.

2. An intake system as set forth in Claim 1,  
25 wherein the lock-shaped portion has a second neck portion which is formed so as to extend from the trunk portion while continuing to form a predetermined angle relative to the first neck portion and which penetrates the primary molded members and a second head portion which is  
30 connected to an end of the second neck portion which is opposite to an end thereof which faces the trunk portion and which is formed in such a manner as to be larger in diameter than an outside diameter of the second neck portion.

35 3. An intake system as set forth in Claim 2, wherein an angle that is formed by the first neck portion and the second neck portion is generally 180°.

4. An intake system as set forth in Claim 1, wherein the primary molded member has a first hole portion which provides a communication between the packing portion and an external portion, the arm portion  
5 has a second hole portion which can be connected to the first hole portion, and the first neck portion penetrates the first hole portion and the second hole portion.

5. An intake system comprising;

an intake duct, made from resin, which  
10 forms an intake passageway,

a casing which is divided into two or more piece portions so as to allow the intake duct to be put between the piece portions so divided to thereby form a resonator between the intake duct and the casing, and

15 a joint made from a resin which is packed between the respective piece portions and between the intake duct and the casing and adapted to attain bonding and sealing between the respective piece portions and between the intake duct and the casing.

20 6. An intake system as set forth in Claim 5, wherein the joint is formed from a secondary molding resin which attains welding between the respective piece portions and between the intake duct and the casing.

7. An intake system as set forth in Claim 5, wherein the casing is placed so as to cover an opening  
25 formed in such a manner as to penetrate a circumferential wall of the intake duct.

8. An intake system as set forth in Claim 5, wherein the intake duct has positioning means for  
30 positioning an attachment position to attach the casing to the intake duct.

9. An intake system as set forth in Claim 8, wherein the positioning means is a groove portion which is formed continuously in a circumferential direction of  
35 the intake duct.

10. An intake system as set forth in Claim 8, wherein the positioning means is a protruding portion

which is formed in such a manner as to protrude radially outwardly of the intake duct.

11. An intake system as set forth in Claim 5, wherein the intake duct and the casing form a space  
5 portion into which a resin is packed.

12. An intake system as set forth in Claim 5, wherein the casing covers the intake duct circumferentially.

13. An intake system as set forth in Claim 5, wherein the casing has two piece portions which are  
10 separated by a plane containing an central axis of the intake duct.

14. An intake system as set forth in Claim 5, wherein the casing has three or more piece portions which  
15 are separated by two or more planes extending radially from the central axis of the intake duct.

15. An intake system as set forth in Claim 12, wherein the casing is formed into a cylindrical shape.

16. An intake system as set forth in Claim 15, wherein the casing has two semi-cylindrical piece  
20 portions which are separated by a plane containing the central axis of the intake duct.

17. An intake system as set forth in Claim 15, wherein the casing has three or more fan-shaped tubular  
25 piece portions which are separated by two or more planes extending radially from the central axis of the intake duct.

18. An intake system as set forth in Claim 5, wherein the casing is such that any piece portion and  
30 other piece portions which are adjacent thereto are connected by hinge portions which each can be folded.

19. An intake system as set forth in Claim 18, wherein the piece portions and the hinge portions of the casing are formed integrally from the same resin.

20. An intake system as set forth in Claim 5, wherein the joint has a first joint which attains bonding  
35 and sealing between the intake duct and the casing at

axial end portions of the casing.

21. An intake system as set forth in Claim 20, wherein the first joint extends continuously in a circumferential direction of the intake duct.

5        22. An intake system as set forth in Claim 5, wherein the joint has a second joint which attains bonding and sealing between the respective piece portions.

10        23. An intake system as set forth in Claim 22, wherein the first joint and the second joint communicate with each other.

15        24. An intake system as set forth in Claim 5, wherein the casing has an injection port which communicates with the joint and into which a resin can be injected.

20        25. An intake system production method for producing an intake system comprising a tubular portion formed of a plurality of divided primary molded members and a functional part placed on the tubular portion, wherein

the functional part is joined to the tubular portion with a secondary molding resin which is packed into a joint between the plurality of primary molded members.

25        26. An intake system production method as set forth in Claim 25, wherein the functional part is joined to the tubular portion with the secondary molding resin which is caused to overflow from the joint between the plurality of primary molded members to the outside of the tubular portion.

30        27. An intake system production method as set forth in Claim 26, wherein a fixture for forming a lock-shaped portion by the secondary molding resin is brought into abutment with an end of the functional part which is opposite to an end thereof which faces the tubular portion.

28. An intake member production method for

producing an intake member for supplying intake air to an internal combustion engine by joining together a plurality of resin molded bodies, the intake member production method comprising a secondary molding process in which an intermediate resin molded body is put between two outer resin molded bodies, and a molten resin is injected substantially simultaneously into a first interface which is an interface between one of the outer resin molded bodies and the intermediate resin molded body and a second interface which is an interface between the other outer resin molded body and the intermediate resin molded body so that the two outer resin molded bodies and the intermediate resin molded body are welded together.

29. An intake member production method as set forth in Claim 28, wherein in the secondary molding process, a resin flow path is formed on the first interface and the second interface by putting the intermediate resin molded body between the two outer resin molded bodies, so that the molten resin is injected into the resin flow path so formed.

30. An intake member production method as set forth in Claim 29, wherein in the secondary molding process, the resin flow path formed on the first interface is formed by a groove provided in at least one of the outer resin molded body and the intermediate resin molded body which form the first interface, and the resin flow path formed on the second interface is formed by a groove provided in at least one of the outer resin molded body and the intermediate resin molded body which form the second interface.

31. An intake member production method as set forth in Claim 29, wherein in the secondary molding process, a communicating flow path which provides a communication between the resin flow path on the first interface and the resin flow path on the second interface is formed by a hole which penetrates the intermediate resin molded

body.

32. An intake member production method as set forth in Claim 28, comprising a positioning process for positioning the intermediate resin molded body relative to the two outer resin molded bodies by a fixture prior to the injection of the molten resin in the secondary molding process.

33. An intake member production method for producing the intake member as set forth in Claim 32, the intake member having a plurality of bearings which support a rotational shaft of a valve member for opening and closing a passageway of intake air at a plurality of axial locations, wherein in the positioning process, a plurality of intermediate resin molded bodies such as the intermediate resin molded body which constitute the plurality of bearings are held coaxially by the fixture.

34. An intake member production method as set forth in Claim 33, wherein in the positioning process, three or more intermediate resin molded bodies such as intermediate resin molded bodies are held coaxially by the fixture.

35. An intake manifold production method wherein an intake manifold for distributing and supplying intake air to a plurality of cylinders of an internal combustion engine is produced as the intake member by the method as set forth in Claim 28.

36. An intake member produced by the method as set forth in claim 28.